

## CLAIMS

- 1 1. A method of imaging portions of a workpiece located within a field of  
2 view of an imaging system, the workpiece having features which are to be  
3 detected with the imaging system, the method comprising:  
4       illuminating a first portion of the workpiece from a first combination  
5 of illumination positions and reduced illumination positions so as to limit a  
6 first distribution of energy reflected specularly from a workpiece location  
7 corresponding to the first portion;  
8       generating output signals to produce image data representative of an  
9 image of the first portion;  
10       illuminating a second portion of the workpiece from a second combi-  
11 nation of illumination positions and reduced illumination positions so as to  
12 limit a second distribution of energy reflected specularly from a workpiece  
13 location corresponding to the second portion, the second combination being  
14 non-identical to the first combination as a result of a position of the work-  
15 piece portion within the field of view of the imaging system;  
16       generating output signals to produce image data representative of an  
17 image of the second portion; and

18        detecting the features in images of the first and second image portions  
19        based on similarities and differences in the images.

1        2.        The method of claim 1 wherein illuminating the first portion and il-  
2        luminating the second portion are carried out concurrently.

1        3.        The method of claim 1 further wherein the surface features are ma-  
2        chine readable marks.

1        4.        The method of claim 1 further comprising controllably positioning  
2        the field of view of the imaging system after illuminating the first portion so  
3        as to view the second portion with the imaging system.

1        5.        The method of claim 4 wherein controllably positioning is carried out  
2        with a computer-controlled galvanometer-mounted pivotal mirror having a  
3        maximum deflection angle, wherein a maximum field of view of the imag-  
4        ing system is limited by the mirror deflection angle.

1     6.     The method of claim 3 further comprising moving the workpiece  
2     relative to the imaging system after illuminating the first portion so as to  
3     view the second portion with the imaging system.

1     7.     The method of claim 6 wherein moving is carried out with an X-Y  
2     stage.

1     8.     The method of claim 1 wherein the features are marks on a semicon-  
2     ductor wafer.

1     9. The method of claim 1 wherein the features are laser scribed marks on the  
2     workpiece, detecting is carried out with by means of a machine vision proc-  
3     essor, and wherein illuminating the first and second combinations of illumi-  
4     nation positions and reduced illumination positions introduces sufficient  
5     contrast between the features and a background to detect the features at any  
6     angular location within a field of view of the imaging system.

1     10. The method of claim 1 further including irradiating the workpiece with a  
2     laser beam to modify a workpiece surface property wherein a feature is pro-  
3     duced by interaction of the laser beam and the workpiece.

1 11. A method of imaging portions of a workpiece comprising:  
2 illuminating the workpiece from an illumination position so as to  
3 produce reflected energy from at least first and second portions of the  
4 workpiece;  
5 attenuating, at a first location between an illumination position and an  
6 image location, a first portion of the reflected energy so as to limit the dis-  
7 tribution of reflected energy incident on an image location corresponding to  
8 a first portion of the workpiece;  
9 generating output signals to produce image data representative of an  
10 image of the first portion;  
11 attenuating, at a second location between an illumination position and  
12 an image location, a second portion of the reflected energy so as to limit the  
13 distribution of reflected energy incident on an image location correspond-  
14 ing to a second portion of the workpiece;  
15 generating output signals to produce image data representative of an  
16 image of the second portion; and  
17 detecting the features in images of the first and second image portions  
18 based on similarities and differences in the images.

1    12.    The method of claim 11 wherein attenuating the first and second por-  
2    tions is carried out concurrently.

1    13.    The method of claim 11 further comprising irradiating the workpiece  
2    with a laser beam to modify a workpiece surface property wherein a surface  
3    feature is produced by interaction of the laser beam with the workpiece.

1    14.    The method of claim 11 wherein attenuating comprises controllably  
2    positioning at least one baffle in a path between an illumination position and  
3    an image location.